



Biology Discussion Groups at the University of Nevada

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Abstract

Biology Discussion Group (DG) program at University of Nevada, Reno was established in an effort to create a community of peer leaders and enhance the learning experience of students in our high-enrollment introductory Biology courses. Since 2008, the DG program has grown and has been successfully implemented in introductory lecture courses, genetics, and a freshmen experience course. The benefits of this program are numerous and significant. Students working as leaders master their command of content and gain leadership skills. Participants who attend DGs have the opportunity to review the concepts and retain information in a more meaningful way. The program has also had a positive effect on retention and success rates in high-enrollment introductory courses that traditionally had high “DFWI” rates. To improve the quality of the DGs, we have recently made two significant changes to the program: (1) optional DGs were converted to mandatory (MDGs); and (2) a Peer Mentoring Program was established in which experienced peer leaders observe and provide constructive feedback to DG leaders.

Discussion Groups

The Biology Discussion Group (DG) program is focused on helping Nevada undergraduates improve their basic scientific skills. By participating in DGs, students taking high-enrollment lecture-only courses are given a chance to work in small groups led by a peer leader. Aside from the obvious and well-established benefit of peer-led learning, this program has helped us improve both student retention and success rates and foster some amazing leaders among science majors.

During the six years of its existence, the program has expanded and transformed significantly. Ten Biology faculty and more than 200 peer leaders have been involved in successfully implementing DGs into three Biology lecture courses (Intro to Cell and Molecular Biology, Intro to Organismal Biology, Genetics), and one freshmen experience course.

What this program is:

- student-centered
- focused on active learning
- creating a community of learners



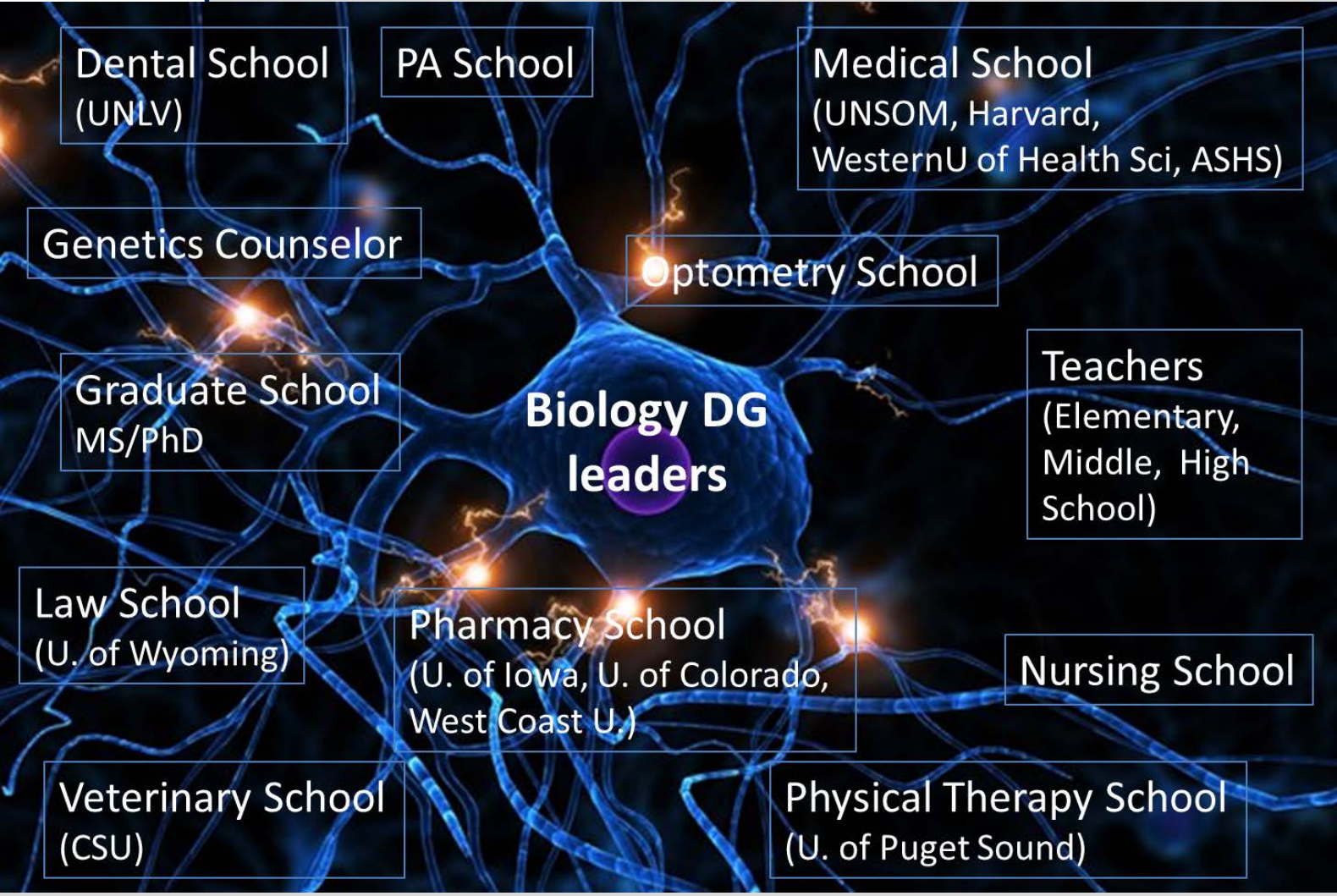
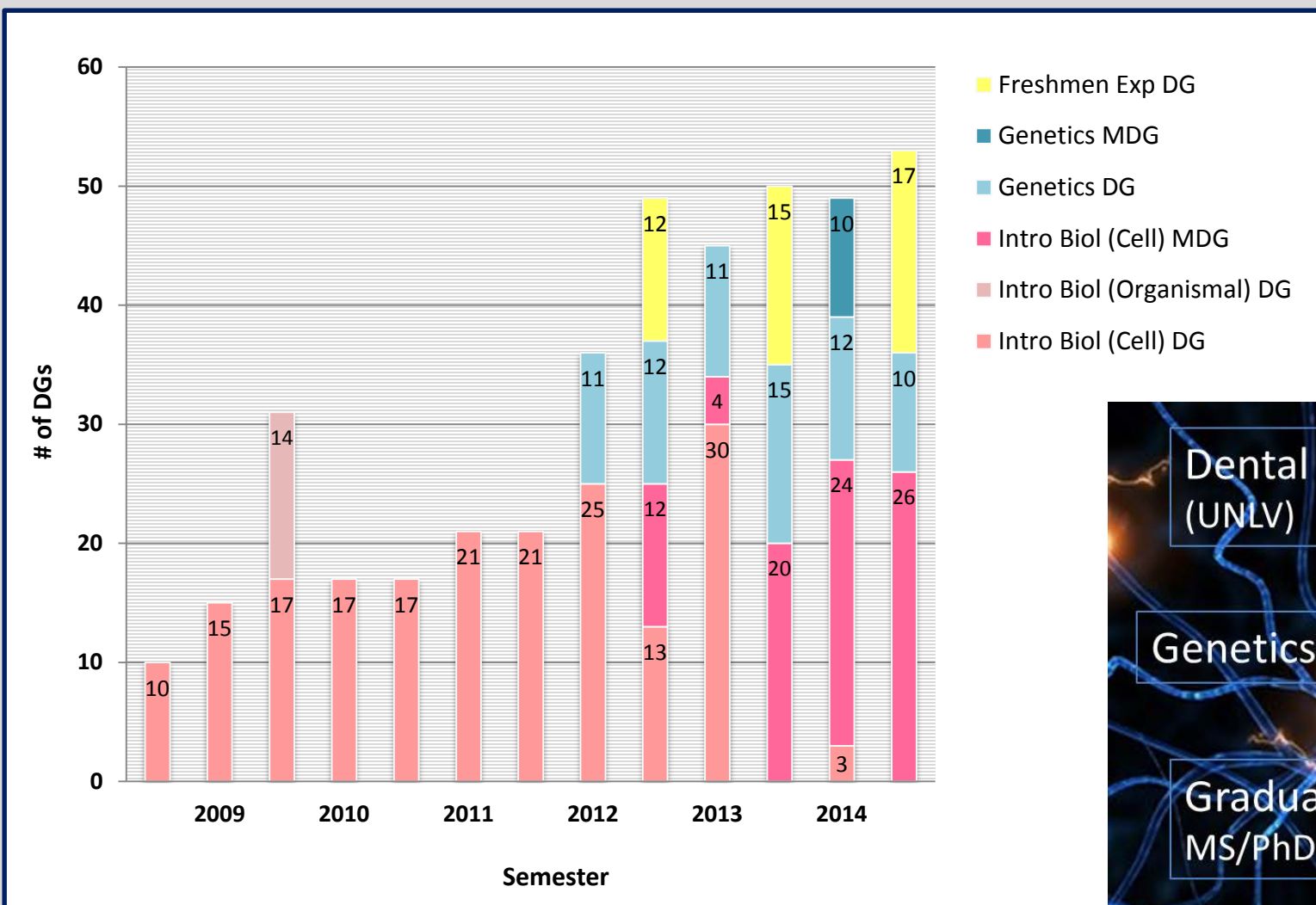
What this program is not:

- recitation
- tutoring
- supplemental instruction



Community of Learners

DG leaders earn academic credit (Independent Study, BIOL 298 or 491, or Scientific Leadership, SCI 499) for their participation in the program. They receive training and attend a weekly meeting with the instructor and other leaders before facilitating their weekly one hour DG. In addition to gaining a deeper understanding of crucial scientific concepts, DG leaders also develop superior leadership skills. Many of our leaders have discovered a passion for teaching and continued to pursue a career in education or have been accepted into prestigious professional programs.



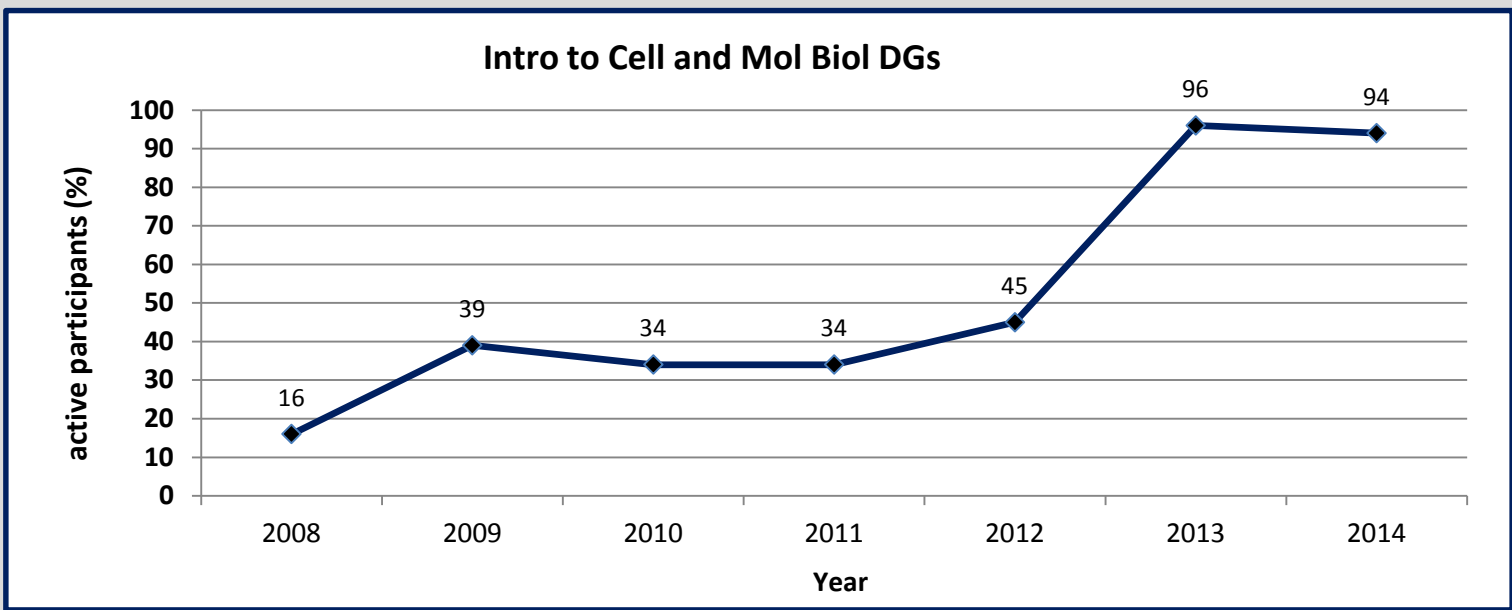
Establishing Mandatory DGs

Biology DGs were initially optional, but now some sections of Intro to Cell and Molecular Biology and Genetics are offered as hybrid courses with Mandatory Discussion Groups (MDGs).

Courses with MDGs have undergone the following changes:

- **class format:** instead of attending lecture twice a week for 75 min, the entire class meets twice a week for 50 min and the third 50-min weekly meeting is converted to a MDG with a peer leader facilitating a group of 20 or less undergraduates;
- **expectations:** students must review content in narrated online videos and activities before coming to class to allow the emphasis in class to be shifted toward active learning;
- **MDG leaders:** returning leaders now receive a small stipend (funds provided by College of Science and Department of Biology)

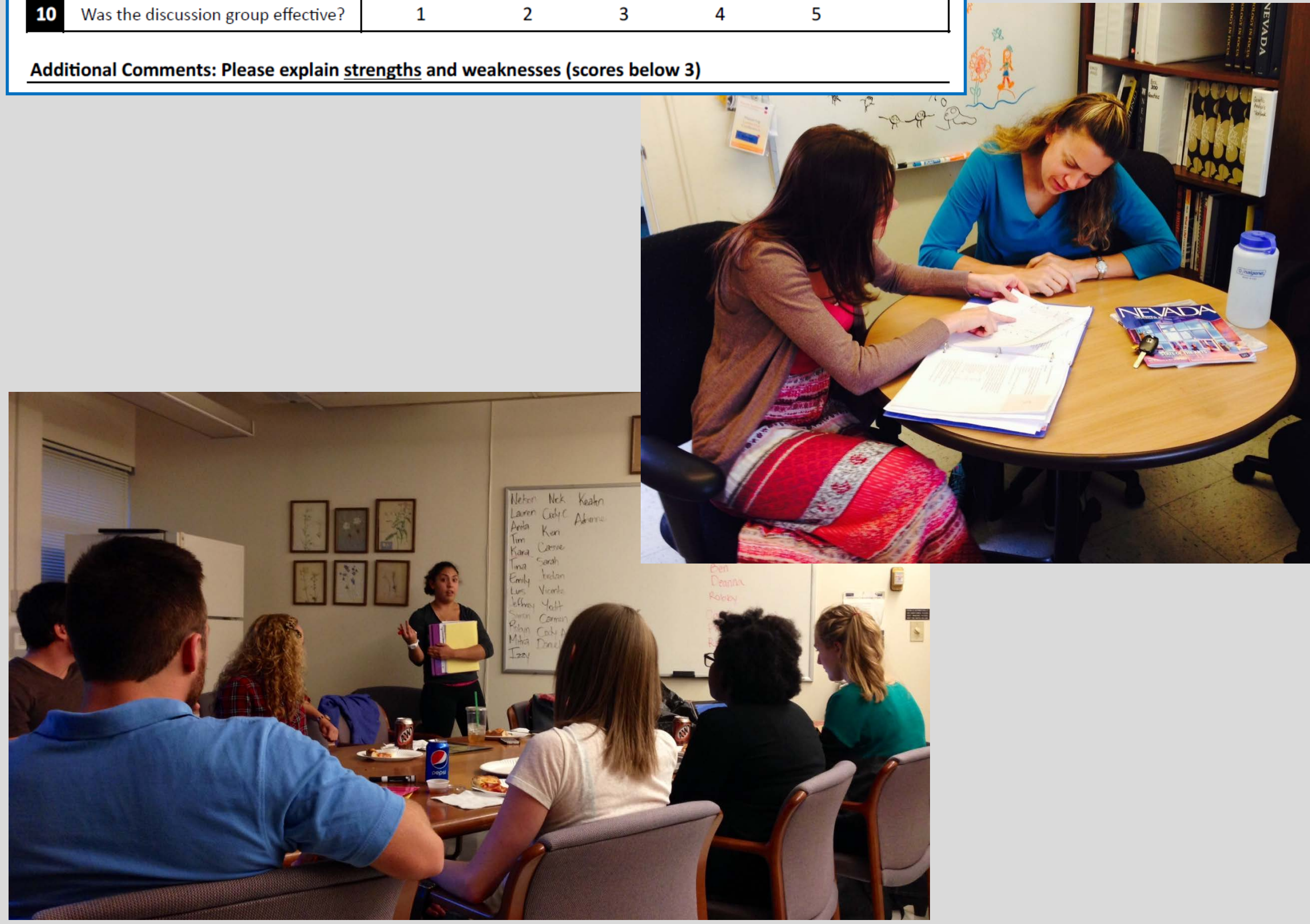
Since 2012, nine sections of Intro to Cell and Molecular Biology, as well as a few sections of Genetics, have used this student-centered approach. In contrast to optional DGs, now over 100 MDGs accompanying these classes have offered a much more consistent platform for leaders to review case studies, participate in Jeopardy “contests,” complete worksheets, and engage in hands-on activities with all students.



Peer Mentoring Program

The Peer Mentoring Program that we introduced over the past two years has been essential in maintaining the quality of the DG program. Here, experienced peer leaders observe and give constructive feedback to other peer leaders. At the mentor training and meetings, the instructors review their expectations and evaluation criteria. The importance of effective communication skills when interacting with the peer leader in person and giving feedback via e-mail is also emphasized with the peer mentors. Initial funds from the Provost Office and continued support from the College of Science have allowed us to expand the program and have new leaders observed by different peer mentors every other week.

University of Nevada, Department of Biology		Discussion Group Visitation	
Discussion Group Leader Peer Evaluation Form			
Leader Name	Discussion Group Day & Time		
Course	Section	Chapters Covered	
Observer	Total Points		
Did the class start on time? Y N If not, how late:			
Rating Scale: 1-Inadequate 2-Needs Improvement 3-Fair 4-Capable 5-Mastered			
Observations		Rating	
Did the DG leader...			
1	discuss topics relevant to lecture?	1	2 3 4 5
2	come prepared for the discussion group?	1	2 3 4 5
3	clearly explain the important ideas?	1	2 3 4 5
4	display mastery of the course content?	1	2 3 4 5
5	encourage participation?	1	2 3 4 5
6	effectively use teaching resources (i.e., board, computer, slides, etc.)?	1	2 3 4 5
7	show enthusiasm?	1	2 3 4 5
8	answer all questions? If not, did he/she handle the situation appropriately?	1	2 3 4 5
Overall			
9	Did the students appear responsive to the DG leader?	1	2 3 4 5
10	Was the discussion group effective?	1	2 3 4 5
Additional Comments: Please explain strengths and weaknesses (scores below 3)			



Good afternoon _____,	
After visiting your discussion groups, the mentors have rated your discussion group leadership as _____ (below average/average/above average) based on the criteria below.	
Discussion Group Evaluation	
Rating Scale	1 - Inadequate 2 - Needs Improvement 3 - Fair 4 - Capable 5 - Mastered
Rating	
Class Participation	
Preparedness	
Material Competency	